FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON D C 20426

To The Agency/Party Addressed:

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's regulations, 18 CFR Part 380 (Order No. 486, 52 F.R. 47897), the Office of Hydropower Licensing staff reviewed the development application, and prepared the attached Environmental Assessment (EA). The EA contains staff's analysis of the environmental impacts of the proposed project and concludes that approval of the proposed project, with mitigative measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The attached EA is for your information.

Sincerely,

Dean L. Shumway
Director, Division
of Project Review

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ENVIRONMENTAL ASSESSMENT FOR HYDROPOWER LICENSE

Beaver City Canyon Upper

Hydroelectric Project

FERC Project No. 10021-001

Utah

USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

and

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review
825 N. Capitol Street, NE
Washington, D.C. 20426

October 4, 1990

JOINT ENVIRONMENTAL ASSESSMENT PROCESS

The Commission staff and Forest Service staff wrote this joint environmental assessment.

The agencies would share control--the Commission by licensing the project, the Forest Service by managing the national forest where the project would be built.

By joining forces, we've shortened the licensing process and reduced paperwork. Requirements of the National Environmental Policy Act and regulations of the Council on Environmental Quality encourage joint assessments.

The Commission will use this environmental assessment to decide on licensing.

The Forest Service will use this environmental assessment to decide what conditions to require under section 4(e) of the Federal Power Act and through its special use authorization to protect the federal reservation where the project would be built and to make the project consistent with the purposes of the federal reservation.

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ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING
DIVISION OF PROJECT REVIEW

U.S.D.A. FOREST SERVICE
FISHLAKE NATIONAL FOREST
BEAVER RANGER DISTRICT

Date: October 4, 1990

Project name: Beaver City Canyon Upper Hydroelectric Project

FERC Project No. 10021 - 001

A. APPLICATION

1. Application type: Minor, unconstructed

2. Date filed with the Commission: 11/29/89

3. Applicant: Beaver City

4. Water body: Beaver River basin: Beaver

5. Nearest city or town: Beaver (See figure 1.)

6. County: Beaver State: Utah

B. PURPOSE AND NEED FOR ACTION

1. Purpose.

Beaver City's proposed project would provide an estimated average of 3.82 gigawatthours (GWh) of electrical energy per year, which the city would use to serve its customers.

2. Need for power.

In 1988, Beaver City's summer and winter loads exceeded the city's generating capability, which comes from two resources: part of the Colorado River Storage Project and the Hunter Unit No. II steam-electric plant.

Beaver City would use generation from the proposed project to reduce the city's need to buy power to offset generating deficits. By building the project, Beaver City would also reduce both the cost the city's power customers must pay for electrical energy and the city's dependence on outside power suppliers.

The Commission staff estimates Beaver City's 50-year levelized alternative energy cost would be 100 mills per kilowatthour (kWh). Because the levelized cost of energy from the project would be 49 mills per kWh, the project would be economically beneficial.

If Beaver City produces more power with the project than it needs, the power would be useful in meeting part of the need for power PacifiCorp and other power systems project in the Western Systems Coordinating Council region.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Description of the proposed action. (See figure 2.)

Beaver City proposes to build the project in the Fishlake National Forest, at the site of an abandoned Utah Power and Light (UPL) hydropower project. (The UPL transmission line remains.) The project would be between the upstream existing UPL exemption (FERC No. 814-004) and the downstream existing Beaver City project (FERC No. 1858).

The project would consist of: (1) a 30-foot-long, 8-foot-high diversion dam; (2) a 30-inch to 24-inch diameter, 12,200-foot-long ductile-iron, buried penstock; (3) a powerhouse, 15 feet by 26 feet, containing one generating unit with an installed capacity of 650 kilowatts, operating under a gross head of 474 feet, and producing an estimated average annual energy output of 3.82 GWh; (4) a tailrace, 3 feet in diameter and about 30 feet long; (5) a 12.47-kilovolt, 12,500-foot-long transmission line (may use the abandoned UPL transmission line); and (6) related facilities. (See exhibits F & G of the application for license.) The project would operate in an instantaneous run-of-river mode, where outflow equals inflow.

2. Applicant's proposed mitigative measures.

a. Construction.

Beaver City would bury all but about 50 feet of the penstock in the road; revegetate any penstock area outside of the roadway disturbed by construction; do work on the penstock during the non-skiing season to avoid conflict with ski resort traffic; and design and build all transmission lines and poles to protect raptors.

b. Operation.

Beaver City would provide year-round bypass flows to protect the fishery.

	Wet or normal year	Dry year
January 1 through March 31	8 cfs	6 cfs
April 1 through April 15	15 cfs	15 cfs
April 16 through September 15	18 cfs	15 cfs
September 16 through September 30	15 cfs	15 cfs
October 1 through December 31	8 cfs	6 cfs

Note: see section G1 for definition of wet and dry years.

3. Federal lands affected.

___No. _X_Yes; Fishlake National Forest ___; acreage = 12.7.
(agency)

When this joint EA is finished, the FS will provide terms and conditions of occupancy for lands of the Fishlake National Forest under section 4(e) of the Federal Power Act. The proposed conditions are presented in the appendix.

4. Scoping of Issues.

In 1978, UPL, the previous developer of the site, applied to the Commission to remove the project facilities. Since UPL abandoned the site, others have investigated developing it.

During April, 1990, draft NEPA documents concerning the Beaver City proposed development were sent by the Fishlake National Forest to a broad mailing list of individuals, organizations, and agencies for comment. There were no responses.

During earlier scoping efforts for this project, correspondence was received from the following:

Utah Bureau of Water Quality, Division of Health;
Utah Division of Outdoor Recreation;
Utah Division of Wildlife Resources;
U.S. Fish and Wildlife Service;
National Park Service;
Utah State Historical Society;
Utah State Planning Coordinator;
Utah State Division of State History;
Utah Department of Natural Resources;
Beaver City Corporation;
Utah Department of Transportation;
Utah Division of Water Rights;
USDI Office of Environmental Project Review.

From these agencies, the FS determined the major issues of developing the site are:

a. What effects would reduced water flow in this stretch of the Beaver River have on the population of resident brown trout and conditions of favorable flow?

b. What effects would the project have on recreational use in the canyon and on the travelers on Utah State Road 153 (SR153), a designated Scenic Byway?

c. What is the potential for erosion and sedimentation?

d. Would there be a need for fish screens on the intake structure?

e. Would there be a need to protect raptors from electrocution?

These issues are addressed in section G, "Issues, Environmental Impacts, and Resolutions".

5. Alternatives, including Beaver City's proposal.

a. Alternatives considered but eliminated from detailed study.

1. Beaver City's proposal, with the pipeline relocated to the hillside along the route of the old UPL pipeline. (We dismissed this alternative because of its severe adverse visual impact and the expected 10 year or longer recovery period needed for revegetation.)

2. Building the transmission line in a new corridor. (We also dismissed this alternative because of its severe adverse visual impact, and the expected 10 year or longer recovery period needed for revegetation.)

3. Placing the transmission line underground in or along the Utah State Road 153 (SR 153). (This alternative would eliminate any adverse visual impacts, but was dismissed because of conflicts with existing utilities buried in the highway. These utilities included an existing penstock for the City of Beaver Project No. 1858 and a Forest Service water line serving developed recreation sites in the Beaver River drainage. It would also have been difficult to bury the powerline because of several bridges across the river.)

b. Beaver City's license application. (See description in section C1 and C2.)

c. Alternative of no action.

No action, denial of the license, would preclude Beaver City from constructing the proposed project. No action would involve no alterations to the existing environment and would prevent Beaver City from producing electrical power at the site.

d. Beaver City's license application, with additional mitigation.

We discuss the need for this additional mitigation in section G, and we describe the proposed license conditions for carrying out the mitigation in the appendix. This alternative would require Beaver City to do the following:

1. Do no penstock construction during (a) the winter ski season of November 15 to April 1, (b) the October rifle deer hunt and the associated pre- and postseason traffic period, and (c) the weekends and holidays of the summer recreation season from June 15 to October 15.

2. Allow no traffic delays longer than 1 hour.

3. Install 19 fish habitat improvement structures.

4. Monitor project operation to determine if habitat improvement succeeds in providing desired fish populations. Beaver City may be required to carry out additional measures if needed to reach desired population levels.

5. Build the powerhouse with a profile not to exceed the height of the existing grade of the highway.

6. Use colors, materials, and surface treatments for all facilities that blend with the surrounding landscape.

7. Use non specular transmission line conductors.

8. Use native plant species to screen facilities from view.

9. Reshape and revegetate disturbed areas to blend with surrounding visual characteristics.

10. Build the transmission line where it would have the least effect on visual resources.

11. Ensure that erosion and sedimentation from project construction and borrow and spoil sites is temporary and kept to minor levels.

12. Maintain minimum streamflows proposed by Beaver City.

13. Install a fish screen at the intake.

14. Use raptor proof design in the transmission line.

15. Protect archeological and historical sites.

D. CONSULTATION AND COMPLIANCE

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

a. U.S. Fish & Wildlife Service (FWS):	_X_ Yes.	___ No.
b. State(s):	_X_ Yes.	___ No.
c. National Marine Fisheries Service (NMFS):	___ Yes.	_X_ No.

2. Section 7 consultation (Endangered Species Act).

a. Listed species: _X_ None. ___ Present:

b. Consultation: _X_ Not required.
___ Required; completed: __/__/__.

Remarks: Letter to the Commission from U.S. Fish and Wildlife Service, dated December 1, 1986, about the preliminary permit application.

3. Section 401 certification (Clean Water Act).

___ Not required.

_X_ Required; applicant requested certification on 6/19/86.

Status : _X_ Granted by the certifying agency on 6/27/86.

4. Cultural resource consultation (Historic Preservation Act).

a. State Historic Preservation Officer (SHPO): _X_ Yes. ___ No.
b. National Park Service (NPS): _X_ Yes. ___ No.
c. National Register status: _X_ None. ___ Eligible or listed.
d. Council: _X_ Not required. ___ Completed: __/__/__.
e. Further consultation: _X_ Not required. ___ Required.

Remarks: Letter to Beaver City from the Utah Division of State History dated November 20, 1989, said that no historic properties would be affected by the project.

5. Recreational consultation (Federal Power Act).

a. U.S. Owners: _X_ Yes. ___ No.
b. NPS: _X_ Yes. ___ No.
c. State(s): _X_ Yes. ___ No.

Remarks: NPS and Utah Parks and Recreation were sent copies of the application when filed with the Commission, but did not respond to the notice of application.

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: _X_ None. ___ Listed. Determination completed: __/__/__.

Administering agency: _____.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act).

Status: _X_ None. ___ Designated.

___Determination completed: __/__/__.
Administering agency: _____.

E. COMMENTS

The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 2/12/90.

Commenting agencies and other entities	Date of letter
Department of the Interior Forest Service	4/11/90 4/19/90

Motions to intervene	Date of motion
None.	

3. ___Beaver City responded to the comments or motion(s) to intervene by letter(s) dated __/__/__.

_X_ Beaver City did not respond to the comments or motion(s) to intervene.

F. AFFECTED ENVIRONMENT

1. General description of the locale.

a. Description of the Beaver River Basin (figure 1).

The headwaters of the Beaver River Basin are located in the Tushar Mountain Range at elevations exceeding 12,000 feet. The Beaver River drains the west slope of the range. Major tributaries are South Creek, North Creek, and Indian Creek. The river traverses vegetation types from alpine to the desert community north and west of Milford.

The climate in the area is essentially arid continental. Localized summer thunder storms and rapid melting of the snow pack in the late spring and early summer sometimes cause flooding. The project site in the Beaver Canyon drainage is characterized by cool subhumid summers and cold snowy winters. The elevation varies from 6,778 feet at the power plant location to 7,252 feet at the diversion structure. Average annual precipitation is from 20 to 30 inches, with more than half falling as winter snow. The frost-free season varies from 50 to 70 days.

The Beaver River continues west and north, and on extremely wet years joins the Sevier River north of Sevier Lake. In years of normal to low precipitation, the river rarely runs beyond Milford.

In most years, on April 1, irrigators divert all of the water (downstream of the proposed project) of Beaver River and its tributaries that can be carried in the canals serving the Beaver area. This generally dewaters this part of the river during the summer months. During the winter months, all of the water from Beaver River and its tributaries is stored in Minersville reservoir, about 15 miles west of Beaver.

b. Existing licensed projects and exempted projects (indicated by an " * " after the FERC Project No.) in the river basin, as of 5/ 7/90 (figure 1).

Project No.	Project name	Water body
9268	Minersville	Beaver R.
1858	Beaver Upper (No 1)	Beaver R.
814*	Beaver Upper	Beaver R.

c. Pending license applications and exemption applications (indicated by an " * " after the FERC Project No.) in the river basin, as of 5/ 7/90 (figure 1).

Project No.	Project name	Water body
10021	Beaver City Canyon Upper	Beaver R.

d. Target resources.

A target resource is an important resource that could be affected cumulatively by two or more proposed hydropower projects. In the Beaver River Basin, we identified (1) resident trout, (2) recreational use, and (3) visual quality as target resources that could be adversely affected cumulatively by proposed hydropower projects.

These target resources are described in section F(2). Impacts to target resources are discussed in section G.

e. Cumulative Impacts

The Council on Environmental Quality (CEQ) defines cumulative impacts as impacts on the environment that result from the incremental impacts of an action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. CEQ says cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR, Part 1508.7).

The target resources were identified during the FS scoping process and analysis of environmental impacts for the proposed project. We say in this assessment that these target resources would not be cumulatively affected by the proposed project. (See the issues in section G-1.)

2. Descriptions of the resources in the project impact area. (Source: Beaver Water Power, application, exhibit E, and Fishlake National Forest Land and Resource Management Plan, unless otherwise indicated).

a. Geology and soils: The geology of Beaver Canyon consists of a complex network of highly faulted Tertiary volcanics. The canyon walls consist predominantly of the Bullion Canyon and Mount Dutton Formations. These formations consist of rhyodacitic to andesitic lava flows, flow breccia, and mudflow breccia. The valley floor and stream channel contain Quaternary alluvium, flood plain and channel deposits, and landslide debris.

Local soils belong to the Koosharem and Paul Families. Both of these families are on slopes of seven percent or less and thus have a moderate erodibility factor and a low erosion hazard.

Although Beaver Canyon contains several fault traces, no significant tectonic activity has been known to occur in the project area in the historic past. Paleo and recent landslide activity is evident in the canyon. The most recent landslide occurred in 1983, when extraordinary floods (100+yr flood) triggered land movement on the south side of the canyon. The proposed project is mostly on the north side of the canyon.

b. Streamflow:

low flow: 16 cfs; flow parameter: 75 year monthly mean flow
high flow: 119 cfs; flow parameter: 75 year monthly mean flow
average flow: 53 cfs.

Source: USGS data in additional information dated April 26, 1990.

c. Water quality: The water quality of Beaver River is generally very good. The river falls under the classification of 3A in the Utah Wastewater Disposal Regulations, Part II, Standards of Quality for Waters of the State, as revised in October 1978. This class of water is protected for cold water species of fish and other aquatic life. Water quality samples taken by different agencies all show that water quality parameters fall within the state standards.

d. Fisheries:

Anadromous: _X_ Absent. ___ Present.

Resident: ___ Absent. _X_ Present.

Wild brown trout and rainbow trout (both stocked and wild) populations are present in the bypassed reach, with brown trout dominating in the lower end and rainbow trout in the upper. Occasionally, cutthroat and brook trout have been found in low numbers. In 1988, the Utah Division of Wildlife Resources (UDWR) conducted population studies that showed an overall production of about 89 pounds per acre in the bypassed reach, approximately three times that found at the downstream monitoring stations (Utah Division of Wildlife Resources, 1988).

The habitat is in good condition, with a well-defined channel, a number of deep pools, abundant spawning and rearing habitat, ample instream cover, and low substrate embeddedness. Banks are rocky, with little overhang. Overhanging vegetation is present in many areas, but is sparse in others. A few areas have long stretches of shallow riffles and unstable banks. During the 1970's, the USFS Region 4 Aquatic Ecosystem Analysis Lab completed benthic macroinvertebrate population studies showing that macroinvertebrate production in the Beaver River is adequate to support a healthy resident fishery (Mangum, 1978).

e. Vegetation: The distribution of vegetative types is determined by slope, aspect, elevation, soil type, and the availability of soil moisture. The project area has six vegetative communities or cover types. Here are the cover types and their dominant species.

Cover type	Dominant species
Aspen	quaking aspen tailcup lupine nodding brome
Mixed conifer	quaking aspen Douglas-fir mountain juniper
Mountain brush	Gambel oak mountain snowberry yarrow
Pinyon-juniper	Gambel oak Utah juniper pinyon pine

Riparian	Fremont poplar sandbar willow Kentucky bluegrass
Sagebrush	big sagebrush Indian ricegrass cheatgrass

Woody riparian types occur along reservoirs, rivers and streams. Sagebrush communities occur on south and west facing slopes and grade into pinyon-juniper stands. Mountain brush and aspen communities occur on somewhat wetter slopes and in the protected drainages and on the east and northwest slopes. Mixed conifer forests occupy north slopes throughout the project area.

No listed threatened or endangered plant species, species proposed for listing, or designated critical habitat or proposed critical habitat are found within this part of the Fishlake National Forest (letter to the Commission from Department of the Interior, December 1, 1986).

f. Wildlife: The affected area contains numerous wildlife species. Species important for recreational purposes are mule deer, elk, rabbit, and upland game birds (ruffed grouse, chukar partridge, mourning dove, band-tailed pigeon, wild turkey). Other important species are bobcat, beaver, coyote, mountain lion, and raptors (red-tailed hawk, American kestrel, Cooper's hawk, goshawk, golden eagle). Bald eagles travel through the area as they fly south for the winter; there are no known bald eagle nest sites in this area.

g. Cultural:

_X_ National Register (listed and eligible) properties have not been recorded.

___ There are properties listed on, or eligible for listing on, the National Register of Historic Places in the area of the project's potential environmental impact.

h. Visual Quality: The proposed project is located in a highly scenic canyon; the steep walls rise about 2,000 feet above Beaver River. The narrow canyon bottom is occupied for most of the bypassed reach by the river and Utah State Highway 153 (SR 153), but widens occasionally, providing areas for recreation sites. The FS (1986) classified the visual quality objectives for the project area as "partial retention", which requires that man-made disturbances not be visually evident.

The walls of the canyon are covered with a mixture of conifers, oak brush, sagebrush and grasses, and rock talus and vertical cliffs, creating a mosaic of textures, colors, and

forms. The river is lined with cottonwood, willow, and other riparian vegetation, further adding to the attractive landscape diversity.

i. Recreation: Recreational uses in the general area include fishing, hunting, camping, picnicking, hiking, backpacking, horseback riding, snowmobiling, skiing, and limited boating. SR 153 has an average annual daily traffic of 195 vehicles. Fishing pressure on the streams, lakes, and reservoirs is considered to be moderate to heavy. Mule deer hunting is very popular. The Elk Meadow Ski Resort is located above the proposed project on the Beaver River and, during the 1988/89 ski season, hosted 25,000 skiers.

UDWR estimates mean angler use is 2,285 angler days per year (Geer, 1982). To meet recreational fishing demands, the bypassed reach is stocked with approximately 1,700 catchable size rainbow trout each year (Geer, 1982).

During 1989, recreation use amounted to 81,200 recreation visitor days (RVD) at developed sites in the Beaver River Canyon area. The FS estimates that about 196,000 RVD's were spent in dispersed recreation activities throughout the Beaver River drainage during 1989.

There are no recreational facilities accessible to the handicapped on the Beaver River.

j. Land Uses: The entire project would be located on National Forest System land, within an area that is withdrawn for power production purposes.

Paved SR 153 traverses the project area and Beaver City proposes to bury the penstock in the shoulder of this highway. The highway is permitted to the Utah Department of Transportation (UDOT) by a right-of-way grant from the FS.

The highway runs from Beaver to Junction and provides access to the recreational features of the Tushar Mountains -- all of the lakes and reservoirs, streams, developed and dispersed recreation areas, and the timber harvest areas in the forest. The state recently selected SR 153 as a Scenic Byway from its beginning to the Elk Meadows Ski resort. This part of the highway, which is in the project area, is paved and kept open during the winter to allow skier access.

The land in the project area is managed primarily for recreation, propagation of fish and wildlife, and livestock grazing. The only industry near the project are two other operating hydropower plants. There is no mining, agriculture, or timber harvest within the project area. The area is within the

North Beaver Cattle Allotment. There are no lakes or reservoirs within the project boundary.

The specific project area is located in Management Area 2B identified in the Land and Resources Management Plan (Forest Plan) for the Fishlake National Forest. Management emphasis is for rural and roaded-natural recreation opportunities. Motorized and non-motorized activities such as driving for pleasure, viewing scenery, picnicking, fishing, snowmobiling, and cross-country skiing are possible. Motorized travel may be prohibited or restricted to designated routes. Visual resources are managed so that management activities maintain or enhance the quality of the recreation opportunities. Management activities are not evident, remain visually subordinate, or may be dominant, but harmonize and blend with the natural setting.

k. Socio-economics: The larger towns of this rural area are Beaver, with a population of approximately 2,500, and Minersville, with about 750. Local employment is concentrated mainly in government, trade, agriculture, and service. Most jobs are year around, except for the tourism industry where there is some seasonal employment. Per capita income in 1980 was $4,431, about 77% of the national average.

The mountainous area of the Beaver River drainage is very popular for hunting, fishing, camping, and skiing, which is important socially and economically. Because the proposed project area is just off Interstate 15, the area is used by many out-of-state visitors.

G. ISSUES, ENVIRONMENTAL IMPACTS, AND PROPOSED RESOLUTIONS

The environmental impacts and resolutions related to the issues listed in section C(4) are discussed here. There are 9 issues addressed below.

1. Erosion and Sedimentation

Building the proposed diversion and powerhouse, and burying the penstock along the existing road would cause localized erosion and sedimentation. In a letter dated October 30, 1989, the FS says that the construction and operating plans should provide for dissipation of energy to prevent erosion where water is returned to the channel. Beaver City would build the tailrace so as to prevent erosion where water is returned to the natural channel but doesn't say how this would be done. Beaver City proposes no measures to control erosion and sedimentation.

The Fishlake National Forest Plan (Forest Plan) management direction prescribes that the FS will maintain soil productivity, minimize man-caused soil erosion, and maintain the integrity of associated ecosystems (Forest Service, 1986).

Installing project facilities would generate excess soil and rock. Sites for disposal of excess soil and rock are limited on national forest lands. If existing FS spoil disposal sites do not have the capacity, excess materials would have to be hauled to a location off National Forest lands (Forest Service, 1986).

Installing project facilities may require additional rock and soil. Since there are no "soil" borrow sites on National Forest lands, Beaver City would have to obtain this from other sources. Borrow sites for rock riprap may be available on National Forest land but must be approved by the FS and rehabilitated after excavation.

Beaver City would file a detailed site-specific erosion control plan to ensure that erosion and sedimentation from project construction and borrow and spoil sites are temporary and kept to minor levels. The plan would include descriptions and specific locations of all control measures.

The plan would require the following: (1) diverting runoff away from disturbed land surfaces; (2) collecting and filtering runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites; (3) covering the penstock trench as soon as possible after the pipe is placed in the trench; (4) placing the penstock at the river crossing so that it does not disturb the riverbanks; (5) revegetating disturbed areas outside of the roadbed; (6) dissipating energy and preventing erosion at the tailrace; and (7) keeping a monitoring and maintenance schedule. (See condition E in the appendix.)

Beaver City's implementation of the soil and erosion control plan would comply with the Forest Plan's direction.

2. Minimum flow.

The proposed project would reduce flows in the 2.2-mile-long bypassed reach resulting in a reduction of riparian vegetation and fisheries. Adequate stream flows are necessary for maintaining fisheries habitat and for maintaining the riparian zone.

The Forest Plan's management direction prescribes that the FS will determine instream flow volumes to protect and maintain stream channel stability and capacity and to meet multiple use objectives, and maintain riparian dependent resource values, including wildlife, fish, watershed, and recreation in a stable or upward trend (Forest Service, 1986).

Stream flows necessary to maintain the fishery and the riparian zone have been evaluated for a number of years. A study of the impacts of a project in this vicinity was conducted by UDWR biologist William Geer (Geer, 1982). That study was the

basis for subsequent agency resource discussions on this application. After considering a range of bypass stream flows, Beaver City, the Utah State Engineer (responsible for water rights)(letter from Robert L. Morgan, P.E., Utah State Engineer, to Beaver City, July 18, 1986), the UDWR (letter from William H. Geer, Director, Utah Division of Wildlife Resources, to Beaver City, December 23, 1988), the Fish and Wildlife Service (letter from the Fish and Wildlife Service, to the Commission, April 11, 1990), and the FS agreed to the following stream flow regime.

Streamflow release requirements.

	Wet or normal year	Dry year
January 1 through March 31	8 cfs	6 cfs
April 1 through April 15	15 cfs	15 cfs
April 16 through September 15	18 cfs	15 cfs
September 16 through September 30	15 cfs	15 cfs
October 1 through December 31	8 cfs	6 cfs

To define a wet year, the State Engineer established the following schedule of stream flows as measured at the Geological Survey stream gaging station number 10234500 (Beaver River near Beaver City) (letter from Robert L. Morgan, P.E., Utah State Engineer to Beaver City, April 13, 1990). If the stream flow at the gaging station is at or below that shown below for the month, the following month's minimum streamflow may be reduced to those flows allowed for a dry year as shown above.

Definition of a dry year.

Month	Flow in cfs	Month	Flow in cfs
January	12	July	24
February	12	August	22
March	14	September	20
April	20	October	14
May	38	November	13
June	30	December	12

These flows would be adequate to protect the resource. (See condition A in the appendix.)

To ensure that these minimum flows are provided, Beaver City would install and operate a priority streamflow device as part of the diversion-intake structure. Beaver City would release minimum streamflows through this device before any flow can be diverted into the penstock. (See condition B in the appendix.)

We considered other stream flows in the analysis and in the negotiations for stream flow bypass requirements proposed for this site. Requirements to release higher bypass flows would make the project less economical, and therefore may discourage development of the project. Lower bypass flows would result in unacceptable impacts to the stream channel, riparian vegetation, and fisheries.

According to Geer (1982), implementing the proposed minimum stream flows would cause a 37 percent loss of standing crop of **wild trout**. The total number of catchable-size **hatchery** rainbow trout would decrease about 8.5 percent. The total **angler carrying capacity** (angler days per year) would decrease about 15 percent.

Improving the stream habitat by constructing about 19 structures in the stream channel would reduce the habitat loss and increase the angler carrying capacity (Forest Service, 1989). This mitigative measure would reduce the loss of the standing crop of **wild trout** from 37 to 31 percent. Sufficient habitat would be restored to permit continuation of current rates of stocking catchable-sized **hatchery** rainbow trout. Therefore, the total **angler carrying capacity** loss would be reduced from 15 percent to 7 percent.

It is possible that the structural improvements to the stream channel would provide enough habitat to stock fish at higher levels than are currently being stocked; however, additional hatchery capacity is not available at this time. (See condition D in the appendix.)

The tradeoffs involved in licensing the project would have some unavoidable adverse impacts on the fishery. Since the loss of fish and resultant loss of angler carrying capacity is estimated based on the professional judgement and analysis of our staff and UDWR biologists, a monitoring plan is necessary.

Beaver City would monitor fish populations, habitat quantity and condition, and reproduction. With mitigation, we recommend an overall objective of maintaining 93 percent of all pre-existing trout populations (hatchery and wild), and a specific objective of maintaining a population of 69 percent of existing **wild trout**.

If, after monitoring, the impacts are greater than anticipated, particularly as a result of smaller bypass releases during dry years, Beaver City would have to implement a plan to further mitigate those impacts.

Beaver City would begin monitoring as soon as construction is complete and include a study of the impacts of dry year releases. Further mitigation might include but would not be limited to additional structural channel improvements, or other habitat improvements, fish stocking, or eliminating the provision for different dry-year flow releases. (See condition D in the appendix.)

This mitigation would comply with the Forest Plan's management direction of determining and maintaining instream flows adequate to protect and maintain stream channel stability.

However, the Plan's objective of maintaining the riparian dependent fishery in a stable or upward trend would not be met (93% of existing).

3. Flushing flows.

Beaver City would provide flushing flows to maintain the channel capacity and stream gravels. River flows vary annually from 20 cfs to 170 cfs and average 51.1 cfs. Since the capacity of the penstock is 25.7 cfs, the project cannot divert enough flow to substantially affect the peak flows that occur from snow melt. Therefore, the naturally occurring high flows would adequately flush the channel.

4. Fish screens.

Operation of the project's proposed impulse turbine would cause fish injury and mortality. FWS and UDWR (letters from Timothy H. Provan, Director, Utah Division of Wildlife Resources, to Beaver City, October 3, 1989, and December 4, 1989) recommend that the intake be screened to prevent entry of fish.

Beaver City proposes to install an "at grade aqua-shear" screen at the intake. This screen would be installed on the downstream face of a diversion dam. As water flows over the screen, a portion (1 to 1½ cfs per lineal foot of screen) passes down through the 1 mm openings in the screen into the penstock opening. The remainder flows across the screen surface carrying fish, sediment, and debris downstream.

The screen would adequately protect the existing trout population of the Beaver River. Therefore, Beaver City would install the proposed "at grade aqua-shear" screen at the intake, as described in the application for license.

FWS (April 11, 1990) and UDWR (March 19, 1990) recommend that Beaver City install a broad-crested V-notch weir upstream of the fish screen to provide sufficient flow across the screen during low flow periods. This would concentrate the flow, bypassing fish and debris. They further recommend shading for the fish screens to prevent drying during low flow periods.

These mitigative measures would meet the FS management direction of the Plan and are needed to protect the fishery (condition C of the appendix).

5. Raptor protection.

Wildlife found in the project area include such raptors as hawks and golden eagles. The proposed 12.5-kV, 12,500-foot-long transmission line would constitute an electrocution hazard for

birds that are large enough to simultaneously touch two energized wires or other hardware (Benson, 1982).

UDWR (letter from William H. Geer, Director, Utah Division of Wildlife Resources, to Beaver City, December 23, 1988) and FWS recommend that Beaver City design and construct the project transmission line to prevent electrocution of raptors according to guidelines in Raptor Research Foundation, Inc. 1981. Beaver City proposes to design the project transmission line to prevent raptor electrocution.

To protect golden eagles, hawks, and other large birds, Beaver City would design and construct the poles, crossarms, and conductor placements to ensure a separation of 60 inches of energized hardware (Raptor Research Foundation, Inc., 1981). We believe that compliance with these standards would ensure that golden eagles, hawks, and other large birds are protected from electrocution. (See condition D in the appendix.)

6. Archeological or historic sites discovered during construction or operation of the project, or that may be impacted from changes in the location of project facilities.

The SHPO's comments on the proposed project are based on the premise that the project would be constructed as described in the application without significant changes. Changes to the project, especially changes in the proposed location and design of a project, are occasionally found to be necessary after a license has been issued, and may require an applicant to amend a license.

Under these circumstances, whether or not an application for amendment of license is required, the SHPO's comments would no longer reliably depict the cultural resources impacts that would result from developing the project. Therefore, before beginning land-clearing, land-disturbing, or spoil-producing activities within the project boundaries, other than those specifically authorized in the license and previously commented on by the SHPO, Beaver City would consult with the SHPO about the need to conduct a cultural resources survey and to implement avoidance or mitigative measures.

Also, land-clearing, land-disturbing, and spoil-producing activities could adversely affect archeological and historic sites not identified in the vicinity of the proposed project. Therefore, if Beaver City encounters such sites during the development of project works or related facilities, the licensee would stop land-clearing, land-disturbing, or spoil-producing activities in the vicinity of the sites, would consult with the SHPO on the eligibility of the sites, and would carry out any necessary measures to avoid or to mitigate impacts to the sites.

Either before starting land-clearing, land-disturbing, or spoil-producing activities associated with any changes to the project, both proposed and necessitated, or before resuming land-clearing, land-disturbing, and spoil-producing activities in the vicinity of any previously undiscovered sites, Beaver City would file with the Commission a plan and a schedule for conducting the appropriate studies, along with copies of the SHPO's written comments on the plan and the schedule.

Beaver City would not start or resume land-clearing, land-disturbing, or spoil-producing activities, other than those specifically authorized in this license and commented on by the SHPO, or resume such activities in the vicinity of an archeological or historic site discovered during construction, until informed by the Commission that the requirements discussed above have been fulfilled (see condition I in the appendix).

The Forest Plan requires protection of all national forest cultural resources by avoiding disturbance of cultural resource sites until evaluated and until appropriate adverse effect mitigation procedures that are effected for significant properties. Our mitigation complies with the Forest Plan's direction to protect all national forest cultural resources.

7. Visual Quality.

Beaver City proposes building the project along SR 153, a heavily used paved highway that provides recreational access to the facilities and backcountry of the Fishlake National Forest, and the private lodges and residences in the upper reaches of the canyon. (See Issue 2 above.)

The Forest Plan management direction for the project area is to meet a visual quality objective of partial retention through the choice of facility and structure design, color of materials, and location and orientation (Forest Service, 1986).

SR 153 receives heavy recreational traffic during much of the year. Recreational users tend to be sensitive to the appearance of the landscape, especially since the highway is a Scenic Byway. The only facilities that would be visible to the SR 153 users are the powerhouse and transmission line, and care would be taken to blend them with the surrounding landscape.

The powerhouse would be small, but the roof and part of the walls would be visible to uphill traffic. Building the powerhouse such that the roof does not extend above the highway and painting the exposed surfaces of the powerhouse dark earthtone colors would blend the structure with the surrounding landscape.

Beaver City proposes to use an existing but unused transmission line belonging to Utah Power and Light (UPL). The transmission line is above the highway user on the canyon slopes, apparent only when viewed ahead of the vehicle, and especially when skylined. The existing poles and conductors, if acquired from the UPL, would have to be rebuilt to carry the projected load. New poles, conductors, and insulators would be dark and nonreflective to reduce the adverse visual impact.

To determine the feasibility of removing the transmission line from view entirely, we explored an alternative of burying the transmission line in the highway shoulder. We found, however, that this alternative would conflict with utilities already buried in the highway and would be more expensive.

Beaver City would prepare a visual resource mitigation implementation plan that would provide for the above mitigative measures. This plan would be prepared in consultation with and approved by the FS. Beaver City would file this plan with the Commission prior to beginning any earth-disturbing activities. (See condition F in the appendix.)

The plan would address the following: (1) the powerhouse and associated facilities such as security fences, tailrace, equipment storage, access and parking, and communication equipment; (2) diversion structure and associated facilities such as access and parking, power sources for sensing and monitoring equipment, and inlet controls; and (3) power transmission line.

Mitigation measures would include, but would not be limited to, (1) constructing the powerhouse with a profile not to exceed the height of the existing grade of the highway, (2) using materials or surface treatments with colors that would be in harmony with the surrounding landscape, (3) using nonspecular conductors for the transmission lines, (4) using native plant species to screen facilities from view, (5) reshaping and revegetating disturbed areas to blend with surrounding visual characteristics, and (6) locating transmission facilities to minimize visual impacts.

The mitigative measures of the required visual resource protection plan would not comply with the Forest Plan's visual quality objective of retention because the powerhouse and transmission line would be visually evident. However, they would meet a partial retention objective because, through design and use of native materials and colors, they would be subordinate to the characteristic landscape.

8. Recreation.

A 1987 FS study of recreation needs in the canyon and in the rest of the Beaver Ranger District showed the need for facilities accessible to the handicapped. The only facilities accessible to the handicapped are at Little Reservoir about 2 miles east of the proposed powerhouse. To meet the intent of this plan, Beaver City agrees to construct fishing access facilities for the handicapped on Beaver River at three locations specified by the FS. These facilities would enhance the recreational opportunities in the project area.

The Forest Plan management direction for the project area is to provide facilities which are accessible to handicapped persons.

Beaver City would prepare a recreation plan which would provide for the development of three fishing sites accessible to the handicapped. These sites would consist of hardened surfaces at the roadside and on the trails to the streamside. There would be no additional impacts to other resources. Providing these sites would comply with Forest Plan direction and offset the loss of recreational fishing opportunities resulting from the reduced trout populations FS identified. (See issues G2 & G3 and condition G in the appendix.)

9. Penstock Construction in the Road.

Disruption of traffic during periods of heavy recreational use would cause significant traffic and public safety hazards. Disruption during the ski season would cause an adverse economic impact on the ski area operation.

All but about 50 feet of the proposed penstock (12,200-foot-long total) would will be buried in the inside shoulder of SR 153. SR 153 gives access to the Elk Meadows Ski Area, 6 FS developed summer recreation areas, two operating hydroelectric projects, and several seasonal residences. It also gives general access to large, undeveloped, highly scenic areas of the Fishlake National Forest. Fishermen depend on this road for access to the Beaver River and several lakes and reservoirs. Large numbers of big-game hunters use SR 153 during the 10-day, rifle deer hunting season.

Peak traffic occurs during (1) the winter ski season from November 15 to April 1, (2) the 10-day, big-game rifle hunting season in October, and (3) the weekends and holidays of the summer recreation season from June 15 to October 15.

To minimize disruption of traffic during these peak-use periods, Beaver City would not construct the part of the penstock in SR 153 during (1) the ski season (November 15 to April 1), (2)

the big-game rifle hunting season (during October), including its associated pre- and post season period, and (3) on weekends and holidays during the summer recreation season (June 15 to October 15).

Traffic delays would be kept shorter than 1 hour. Beaver City would submit a traffic management and public safety plan that addresses these restrictions. The plan would ensure safe passage of public traffic during licensee construction and nonconstruction periods. The plan would be developed in consultation with the UDOT, approved by the FS, and filed with the Commission before construction. (See condition H in the appendix.)

UDOT has an easement from the FS for a right-of-way extending 66 feet on either side of the centerline of SR 153. They would require Beaver City to obtain a utility license agreement through their District Five Encroachment Officer, and contractors would be required by UDOT to obtain an encroachment permit before beginning construction.

H. SUMMARY OF ENVIRONMENTAL IMPACTS

The details of the environmental impacts are discussed in section G. The following is a brief summary of those impact to aid the reader in comparing alternatives.

1. Assessment of impacts expected from Beaver City's proposed project (P), with Beaver City's proposed mitigation; (Ps) the proposed project with any additional mitigation recommended by the Commission and FS staffs; and (A) any other action alternative considered. Assessment symbols indicate the following impact levels:

O = None; 1 = Minor; 2 = Moderate; 3 = Major;
A = Adverse; B = Beneficial; L = Long-term; S = Short-term.

Resource	Impact P	Ps	A	Resource	Impact P	Ps	A
a. Geology-Soils	2AS	1AS		f. Wildlife	1AS		
b. Streamflow	2AL			g. Cultural: Archeological	0		
c. Water quality: Temperature	1AL			Historical	0		
Dissolved oxygen	1AL			h. Visual quality	2AL	1AL	
Turbidity and sedimentation	2AS	1AS		i. Recreation	1AL	1BL	
d. Fisheries: Anadromous	0			j. Land use	1AS		
Resident	2AL			k. Socioeconomics	2BL		
e. Vegetation	1AS						

Note: A blank in the Ps column indicates no change from P column.

Remarks:
a. A detailed site specific erosion control plan would be implemented that would minimize adverse impacts.

b. Minimum flows are required that would minimize adverse impacts.

c. Decreased flows would result in a minor increase in water temperature and a minor reduction in dissolved oxygen.

d. Resident trout would be maintained at 69% of existing wild trout populations and 93% of all existing trout populations.

e. Construction of the powerhouse would temporarily disturb about 0.5 acre of grass covered area.

f. Wildlife would be temporarily disturbed by construction activities.

g. No cultural resources have been found.

h. Building the powerhouse as a low-profile structure and painting the exposed surfaces dark earthtone colors and using non-reflective conductors and wooden poles in the transmission line would reduce adverse impacts.

i. Recreational fishing opportunities would be enhanced by the addition of fishing facilities accessible to the handicapped.

j. Short-term disruption of highway use would be reduced by scheduling of construction.

k. Installing the project would help electric users of the service area by keeping their electric rates lower than by purchasing power from other utilities.

2. Impacts of the no-action alternative.

If the Commission doesn't issue Beaver City a license, the city would have to find a replacement source that can supply 3.82 GWh of energy annually. The city would most likely buy replacement power from a utility in the Beaver City area that is selling surplus power from its base-load fossil-fueled plants.

If Beaver City doesn't build the project, the power the city would have produced from a renewable resource would be lost and would have to be provided by consuming nonrenewable fuels, an action that would release undesirable combustion by-products into the air. This alternative would consume about 1,400 tons of coal, 5,600 barrels of oil or 35 million cubic feet of natural gas annually.

There would be no construction of project facilities or changes to the existing physical, biological, or cultural components of the area.

3. Recommended alternative (including proposed, required, and recommended mitigative measures):

___Proposed project. _X_Proposed project with mitigation.
___Action alternative. ___No action.

4. Reason(s) for selecting the preferred alternative.

The preparers recommend alternative "d" (Beaver City's proposed project, including additional mitigation) because it would (a) minimize the adverse impacts to the fishery, riparian vegetation, and visual quality, while allowing an important hydropower project to be developed to provide electricity to the city of Beaver, Utah; (b) provide some mitigation of fisheries losses through structural habitat improvement; (c) enhance recreation opportunities by providing recreational facilities accessible to the handicapped on Beaver River for fishing and other purposes.

I. UNAVOIDABLE ADVERSE IMPACTS OF THE RECOMMENDED ALTERNATIVE

The recommended alternative would have an unavoidable long-term adverse impact on the fishery and angler capacity. The net losses would be about 31 percent of the native wild trout population and a 7 percent loss of fisherman carrying capacity.

During construction of the penstock, there would be an unavoidable short-term adverse impact to the public using the state road. This impact--probably lasting from 45 to 90 days--would be limited to 1-hour delays on weekdays, except during the ski season, the 10-day rifle deer hunt, and holidays when construction would not be allowed.

The presence of the powerhouse and new sections of the transmission line in the natural appearing landscape would have a minor long-term impact on visual quality.

J. COMPREHENSIVE DEVELOPMENT

Section 4(e) of the Federal Power Act (Act) states that in deciding whether to issue a license, the Commission, in addition to considering the power and development purposes of the project, shall give equal consideration to (1) the purposes of energy conservation, (2) the protection of, mitigation of damage to, and enhancement of fish and wildlife, (3) the protection of recreational opportunities, and (4) the preservation of other aspects of environmental quality.

In section 10(a), the Act further states that the project adopted shall be one that in the judgement of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway for (1) the use or benefit of interstate or foreign commerce, (2) the improvement and utilization of water power development, (3) the adequate protection, utilization, and enhancement of fish and wildlife (including related spawning grounds and habitat), and (4) other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes discussed in section 4(e).

In this EA, we examine how the proposed project would affect the resources of the Beaver River. We recommend the following mitigative measures: (1) minimum flows for the project; (2) installing an automatic stream gaging device to ensure release of minimum flows; (3) installing the proposed "at-grade aqua shear" fish screen at the intake; (4) installing 19 stream improvement structures in the bypassed reach; (5) burying the penstock in the roadway; (6) suspending penstock construction during the October deer hunt; (7) limiting traffic delays to 1 hour during the ski season; (8) constructing all power and transmission lines to protect raptors and be visually acceptable; (9) requiring Beaver City to protect all cultural and historic resources discovered during construction, to consult with the SHPO, and to file a cultural resources management plan for approval with the Commission; and (10) implementing fish and wildlife, erosion control, solid waste and hazardous waste, spoil disposal, visual resource, and recreation mitigation plans.

We've included the cost of implementing this mitigation in the evaluation of the project's economics. The cost of carrying out these plans and measures doesn't appreciably increase the project's cost. (This mitigation would increase the cost by less than 1 percent)

The FS identified a need for recreational facilities accessible to the handicapped in the bypassed reach. Beaver City has agreed to construct three access sites in the bypassed reach. Providing these facilities is expected to cost less than $15,000. We believe that providing these sites would enhance recreational fishing opportunities in the project area, provide a needed facility, and would not appreciably affect the economics of the project.

We estimate the proposed project, with these mitigative measures, would generate an average of 3.82 GWh of relatively low cost electrical energy per year, without significantly affecting environmental resources. Because energy deficits in the area may exist as early as 1992, the project would be useful in meeting these near-term energy needs and would conserve fossil fuels and reduce noxious by-product emissions.

In the preparation of this EA, we used the applicable management direction from the Forest Plan for the Fishlake National Forest. The recommended alternative complies with this direction except in 2 areas. With the required mitigation, the resulting fish population would be about 93% of the existing, and the project facilities would meet a partial retention visual quality objective rather than retention.

Based on our review under section 4(e) and 10(a), the proposed project, with Beaver City's proposed and our recommended

mitigative and enhancement measures, would be best adapted to a comprehensive plan for developing Beaver Creek.

K. RECOMMENDATION

_X_ **Finding of No Significant Impact.** Approval of the recommended alternative [H(3)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

___ **Intent to Prepare an EIS.** Approval of the recommended alternative [H(3)] would constitute a major federal action significantly affecting the quality of the human environment; therefore, an EIS will be prepared.

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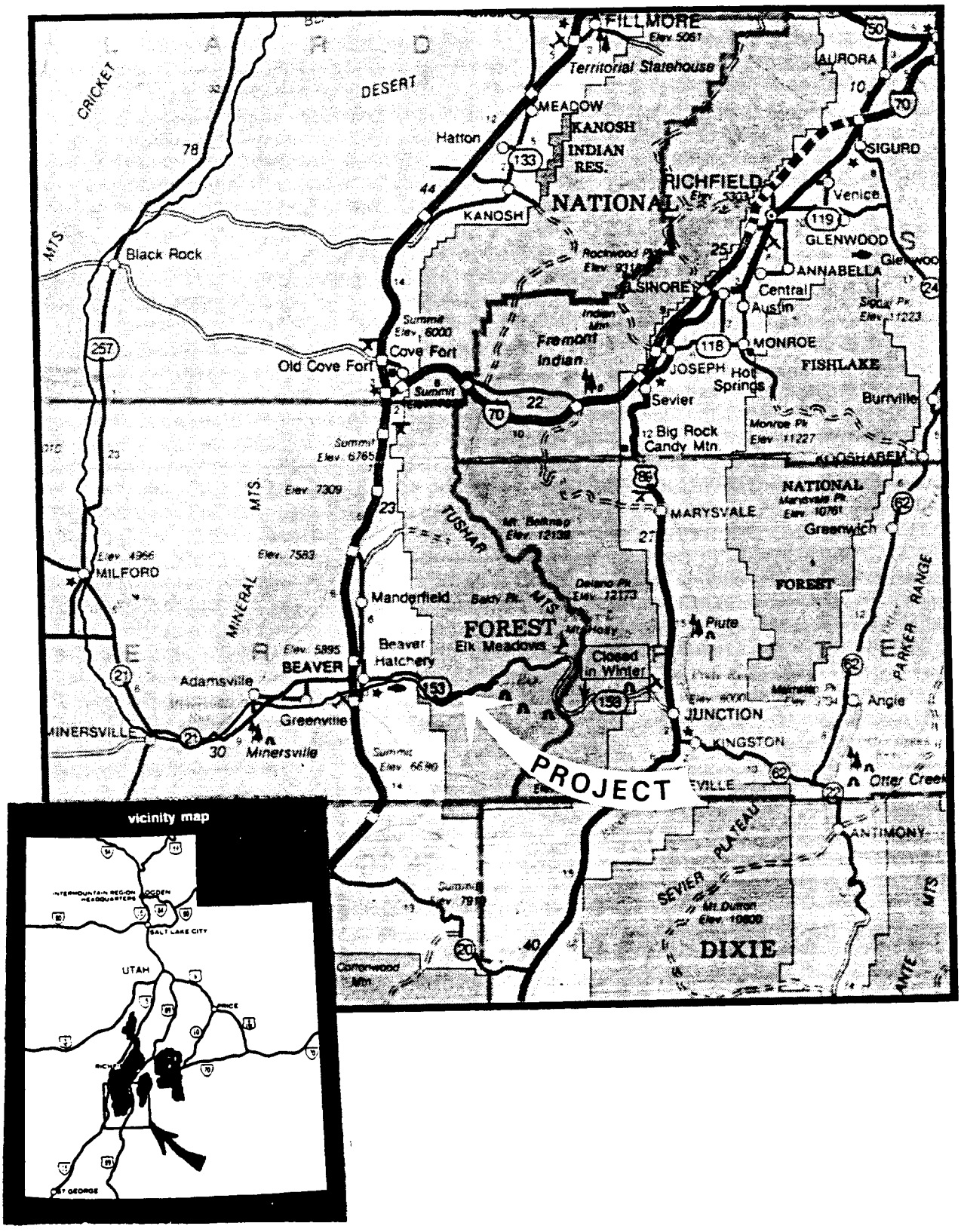

FIGURE 1. Location of the proposed Beaver City Canyon Upper Hydroelectric Project (FERC Project No. 10021).

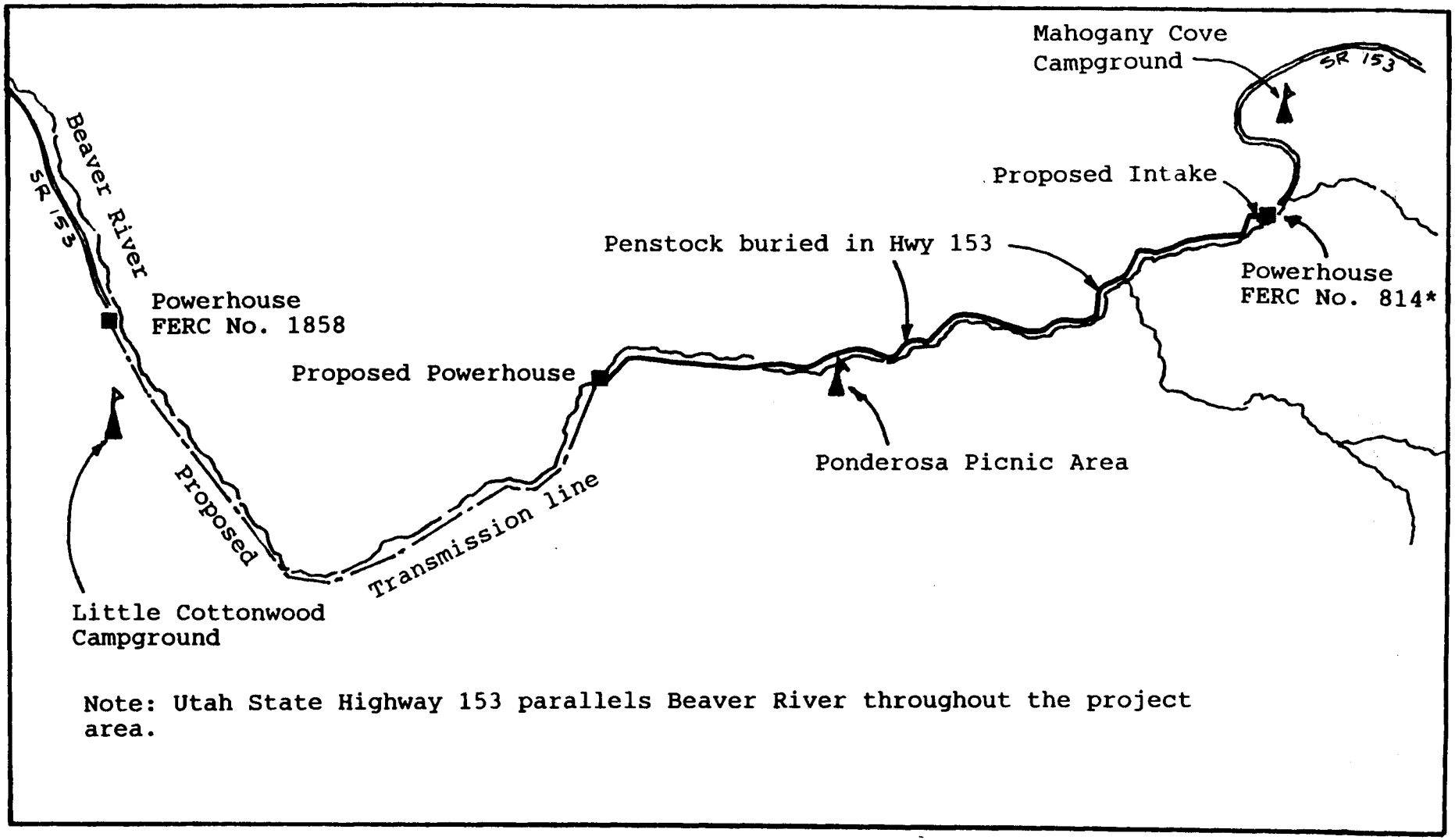

Figure 2. Location of project features for the proposed Beaver City Canyon Upper Hydroelectric Project (FERC Project No. 10021).

APPENDIX

As a result of this EA, the FS and Commission staffs propose the following conditions to mitigate the project's environmental impacts and to enhance and protect natural resources.

A. Minimum Streamflow Requirement

During the construction and operation of the facilities authorized by this license, the licensee shall maintain the following instantaneous minimum flows or the natural flow, whichever is less, immediately below the diversion in the Beaver River.

TIME PERIOD	NORMAL YEAR	DRY YEAR
Jan. 1 through March 31	8 cfs	6 cfs
April 1 through April 15	15 cfs	15 cfs
April 16 through Sept. 15	18 cfs	15 cfs
Sept. 16 through Sept. 30	15 cfs	15 cfs
Oct. 1 through Dec. 31	8 cfs	6 cfs

If the daily stream flow at the USGS stream gauging station number 10234500 (Beaver River near Beaver City) is at or below that shown below during that month, the dry year flow shown above may be maintained in the bypassed reach until the next day's gauge reading.

MONTH	FLOW IN CFS	MONTH	FLOW IN CFS
January	12	July	24
February	12	August	22
March	14	September	20
April	20	October	14
May	38	November	13
June	30	December	12

The Licensee may temporarily modify minimum flows if required by operating emergencies beyond the control of the Licensee. The Licensee may also modify minimum flows for short periods upon written consent of Utah Division of Wildlife Resources and the Forest Service.

B. Guaranteed Priority Flow Bypass Device and Gages

The Licensee shall construct, operate, and maintain a guaranteed priority streamflow device, approved by the Forest Service, as part of the diversion/intake structure. Minimum flows required by condition A shall be automatically released through this device, before any flow can be diverted into the conduit. At least 90 days prior to beginning construction of the diversion structure, the licensee shall file for

Commission approval functional design drawings and an implementation schedule for the guaranteed priority streamflow device, along with any comments of the Utah Division of Wildlife and Forest Service. Upon Commission approval, the licensee shall implement the schedule. The guaranteed priority streamflow device shall be shown on the as-built drawings filed under article 303.

The licensee, after consulting with the Utah Division of Wildlife Resources, the Forest Service, and the United States Geological Survey, shall develop plans to install and monitor a water measurement control section with an continuous recording gage to demonstrate compliance with the requirements of conditions A and B. The licensee shall file with the Commission, at least 90 days prior to the installation of the water measurement control section, plans approved by the Forest Service for the water measurement control section and gaging. The Commission may require changes to the plans.

The licensee shall provide stage-discharge information to the Forest Service prior to commencement of operation of the project. Within 60 days of request, the licensee shall provide the Forest Service with updated stage-discharge charts and/or with a report of streamflow information collected at the water measurement control section and any other applicable stream gage records. The water measurement control section and gage shall be shown on the as-built drawings filed under article 303.

C. Fish Screens

Prior to diversion of any flows into the conduit, the licensee shall install a screen device on the intake structure of the diversion to prevent entrainment of fish into the conduit and penstock system, as proposed in the License Application Exhibit A. The licensee shall also install a V-notch weir above the screen that will concentrate flow during low-flow periods, and shall install both temporary and long-term shade devices to prevent drying of the screen.

At least 90 days prior to the installation of the diversion structure, the licensee shall file for Commission approval, Forest Service-approved functional design drawings for the design of the screen, V-notch weir, and shade devices. The Commission may require modifications to the designs. Any comments of the Utah Division of Wildlife shall be filed with the drawings. The screen, V-notch weir, and shade devices shall be shown on the as-built drawings filed under article 303.

D. Fish and Wildlife Mitigation Plan

At least 90 days prior to land-clearing, land-disturbing, or spoil-producing activities, the licensee shall file for Commission approval, a fish and wildlife mitigation plan approved by the Forest Service. The plan must be consistent with the standards and guidelines for affected management areas in the Fishlake National Forest Plan. The mitigation plan must include the following.

a. A proposal for constructing and maintaining 19 stream improvement structures in the bypassed reach.

b. A description of how the transmission line would be modified or built to conform with the raptor protection described in the 1981 guidelines of the Raptor Research Foundation, Inc.

c. A plan to monitor fish populations, effectiveness of the 19 stream improvement structures, habitat quantity and condition, and fish reproduction.

d. A plan describing additional mitigation that would be implemented if the monitoring shows that the initial mitigation did not achieve the fish and wildlife mitigation objectives.

Comments of the Utah Division of Wildlife shall be filed with the plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area. Upon Commission approval, the licensee shall implement the plan.

E. Erosion Control Measures Plan

At least 90 days prior to starting any land-clearing, land-disturbing, or spoil-producing activities, the licensee shall file for Commission approval, a plan approved by the Forest Service to control erosion, stream sedimentation, dust, and soil mass movement consistent with the standards and guidelines for affected management areas in the Fishlake National Forest Plan. Upon Commission approval, the licensee shall implement the plan.

The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: (1) a description of the actual-site conditions; (2) detailed descriptions, design drawings, and specific topographic locations of all control measures; (3) measures to divert runoff away from disturbed land surfaces; (4) measures to collect and filter runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites; (5) revegetating

disturbed areas outside of the roadbed; (6) measures to dissipate energy and prevent erosion at the tailrace; (7) covering the penstock trench as soon as possible after the pipe is placed in the trench; (8) placing the penstock at the river crossing so that it does not disturb the riverbanks; and (9) a monitoring and maintenance schedule. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

F. Visual Resource Protection

At least 90 days prior to starting any land-clearing, land-disturbing, or spoil-producing activities, the licensee shall file for Commission approval, a plan approved by the Forest Service for the design and construction of the project facilities in order to preserve or enhance the visual character of all facilities, consistent with the standards and guidelines for affected management areas in the Fishlake National Forest Plan. Upon Commission approval, the licensee shall implement the plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

The plan must address facility configurations and alignments, building materials, color, conservation of vegetation, landscaping, and screening. Project facilities to be covered by this plan include, among other things, clearings, diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines and corridors, and access roads.

In particular, the plan must at least include the following: (1) the powerhouse and associated facilities such as security fences, tailrace, equipment storage, access and parking, and communication equipment; (2) diversion structure and associated facilities such as access and parking, power sources for sensing and monitoring equipment, and inlet controls; and (3) power transmission line. Mitigation measures shall include, but will not be limited to, constructing the powerhouse with a profile not to exceed the height of the existing grade of the highway, use of materials or surface treatments with colors that will be in harmony with the surrounding landscape, use of non-specular conductors for the transmission lines, use of native plant species to screen facilities from view, reshaping and revegetating disturbed areas to blend with surrounding visual characteristics, and locating transmission facilities to minimize visual impacts.

G. Project Recreation Plan

At least 90 days prior to starting any land-clearing, land-disturbing, or spoil-producing activities, the licensee shall file for Commission approval, a plan approved by the Forest Service for installing three fishing sites, accessible by handicapped persons, in the bypassed reach. The plan shall be consistent with the standards and guidelines for affected management areas in the Fishlake National Forest Plan.

Upon Commission approval, the licensee shall implement the plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

H. Traffic Management and Public Safety

At least 90 days prior to starting any land-clearing, land-disturbing, or spoil-producing activities, the licensee shall file for Commission approval, a plan approved by the Forest Service for traffic management and public safety associated with construction in the roadbed. The plan must be consistent with the standards and guidelines for affected management areas in the Fishlake National Forest Plan. Upon Commission approval, the licensee shall implement the plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

The plan shall provide for (1) suspension of penstock construction during the winter ski season from November 15 to April 1; during the big-game rifle hunt in October of each year (including a short pre and post season period); during summer recreation season weekends and holidays from June 15 to October 15; and (2) safe passage of public traffic during permitted construction periods, with traffic delays not to exceed 1 hour.

I. Cultural Resource Protection

The licensee shall not initiate any work, other than that specifically authorized in this license, before (1) consulting with the Forest Service and the Utah State Historic Preservation Officer (SHPO), (2) conducting a cultural resources survey of these areas, and (3) filing for Commission approval a cultural resources management plan to avoid or mitigate impacts to any significant archeological or historic sites identified during the survey. The survey and plan shall be based on the recommendations of the SHPO and shall be conducted and prepared by a qualified cultural resources specialist. If the licensee discovers any previously unidentified archeological or historic sites

during the course of constructing or developing project works or other facilities at the project, the licensee shall stop all land-clearing, land-disturbing, or spoil-producing activities in the vicinity of the sites, and shall also consult with the SHPO and file for Commission approval a cultural resources management plan to avoid or mitigate impacts to significant resources, prepared by a qualified cultural resources management specialist.

The survey and the plan shall be documented in a report which shall contain the following: (1) a description of each discovered site, indicating whether it is listed or eligible to be listed on the National Register of Historic Places; (2) a description of the potential effect on each discovered site; (3) proposed measures for avoiding or mitigating the effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for mitigating effects and conducting additional studies. The Commission may require changes to the plan or the report.

The licensee shall not begin land-clearing, land-disturbing, or spoil-producing activities, other than those specifically authorized in this license, or resume such activities in the vicinity of a site discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.